P-125-D

25X1

9 October 1958

MEMORANDUM FOR: THE RECORD

SUBJECT : Project 125-D - 35 mm Time Lapse Camera Modification.

1. Time and Place: September 29 to October 3, 25X1
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2. Attendance:

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3. Purpose: To discuss the conversion of the Time Lapse Cameras into Pulse operated cameras.

4. Background: Six (6) 35 mm Time Lapse Cameras were ordered to be built by delivered the first prototype on June 15, 1958. 25X1

Since June 15, 1958, the prototype has been under test and evaluation by TSS/APD; TSS/PSD; and TSS/ED.

These tests revealed certain favorable considerations which seemed reasonable to believe could be incorporated into the remaining five (5) cameras to be built and to change from a Time Lapse operation to a Pulse operation.

5. Discussions between TSS/APD; TSS/PSD; and TSS/TAG.

The discussions in the main evolved specific changes such as:

Remove the Time Lapse gear train and replace it with an electrical pulse actuation.
Change Eyemo mount system for holding lenses on camera to the Leica thread system.

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Eliminate Silver cell battery and replace it with Nickel Cadmium batteries in units.
Replace family of 7 Wollensak lenses per camera to one 50 mm Leica lens per camera.
Eliminate two hundred foot magazine and increase total number from 15 to 39 magazines.
Modify Burst control from 1 picture per second to 2 pictures per second or faster if possible.
Change Shutter Speeds from 1/50th sec. (slowest and 1/1600th fastest) to 1/5th second slowest to maximum, may be 1/500th second. Also to include Time Exposure.
Eliminate Switch for "Moving targets and Still Targets.
The Switch for Radio Start-Stop Camera can also be connected for the optical sensor.
Reduce Noise of shutter sensor.
Retain Boresight instrument.

~~The switch for "Still and Moving" Targets will be removed.~~

The above changes brought forth the following replacements:

The Time Lapse gear train is to be replaced by Pulse on Command by the operator. The length of time the camera will make pictures when set for manual operation depends on the length of time the operator holds the switch closed.

The foregoing is the main desired changes.

The following is the discussion held at [redacted] as to the feasibility of desired changes. 25X1

A preliminary investigation of the existing design indicated that the following can be incorporated with relative certainty:

1. Replace Eyemo mount on camera with the Leica thread mount.
2. Retain the automatic shutter control system and reduce the audible sound to a minimum. It is now possible to silence the sound of the sensor arm which moves in and "out" of the optical axis of the lens. At present it is objectionable because of a loud click.

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3. Replace the electronic amplifier now sealed and locked in present design, by a sealed replacement block type.

4. Remove time lapse gear train and burst control.

5. Provide reflex adaptability for lenses of 135 mm and longer, assuming that these are provided with screw rings.

6. Design of "piggy back" battery assembly for 100, 400, 100 foot film capacity magazines.

7. Decrease shutter noise.

PROVIDE 8. Tamper proof controls for camera settings.

9. Shutter range from 1/5 second to maximum of 1/500th second. (These figures are not firm at present).

10. Adapter mount for optical sensor on top of camera and add receptacle for sensor.

11. Provide on command hand control for single pictures or continuous pictures.

12. Provide for fully automatic boresight control.

13. Modify control knob selector position to provide for easy use of boresight to time exposure and for this purpose bias to automatic exposure control to set shutter wide open.

14. Incorporate burst control to provide for a short sequence of exposures actuated by a short pulse. i.e. 2, 4, 6, or 8 exposures as desired. It is possible to raise this sequence to 10-12-14 or 16 pictures by presetting a dial to desired sequence.

15. Provide high grade 10 power magnifier for focusing accurately lenses not having the reflex housing adaptability, ie. short focal lengths of less than 135 mm or extreme focal lengths of the reflective system.

16. Provide larger allen head screws and keep screw sizes to a minimum.

The following items require further study as to feasibility:

1. Reduce the thickness of the len mount on camera between that and the film plane of magazine. It seems reasonable to believe that this distance can be reduced to provide for a 50 mm lens but no shorter.

2. Increase pulse rate to 2 a second. Increase the pulse rate of more than 2 if possible, if power drain stands at original level.

3. Single tap voltage for 6 or 12 volt operation or either. Battery drain may make these forms of operation undesirable.

4. Noise reduction of sensor arm.

5. Data recording added to record day (31), hour (24), and perhaps minute or 15 minute indication.

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This report is based upon a preliminary study of the changes desired. It is estimated that by October 17, 1958, [redacted] will be in a position to firm up changes and costs. 25X1

6. Conclusion: The prototype camera is now under going a rigid inspection by [redacted] to correct certain faults inherent in the system. 25X1

These faults were minor and will be corrected. Upon completion, this camera will be the only one of its kind anywhere. It still will accomplish many requirements pertinent in the field of photographic intelligence collection.

[redacted] 25X1

TSS/APD/OB

Distribution:
Orig. - P 125-D
1 - [redacted] 25X1
1 - Chrono
TSS/APD/OB:AEH-jlg (9 October 1958)